

In the foregoing description, the invention has been described with reference to specific exemplary embodiments thereof. It will, however, be evident that various modifications and changes may be made thereto without departing from the broader spirit or scope of the present invention as defined in the appended claims. The specification and drawings are, accordingly, to
5 be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

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1. An inductor comprising:
a substrate comprising a semiconductor material;
a first dielectric layer over the substrate;
a magnetic layer over the first dielectric layer;
a second dielectric layer over the magnetic layer; and
a conductor over the second dielectric layer.
 2. The inductor of claim 1, wherein the magnetic layer comprises cobalt.
 3. The inductor of claim 1, wherein the magnetic layer comprises an amorphous alloy comprising cobalt.
 4. The inductor of claim 1, wherein the magnetic layer comprises an amorphous alloy comprising cobalt and zirconium.
 5. The inductor of claim 1, wherein the magnetic layer comprises an amorphous alloy comprising cobalt, zirconium; and tantalum, niobium, rhenium, or a rare earth element.
 6. The inductor of claim 1, wherein the magnetic layer defines at least one slot.
 7. The inductor of claim 1, comprising:
a third dielectric layer over the conductor; and
another magnetic layer over the third dielectric layer.

8. The inductor of claim 7, wherein the other magnetic layer defines at least one slot.
9. The inductor of claim 7, wherein the magnetic layers are connected.
10. The inductor of claim 1, wherein the conductor defines a generally spiral-shaped signal path having at least one turn.
11. The inductor of claim 1, wherein the first dielectric layer and the magnetic layer define one or more trenches and wherein the conductor defines a signal path along the one or more trenches.

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12. An inductor comprising:
 - a substrate comprising a semiconductor material;
 - a first dielectric layer over the substrate;
 - a conductor over the first dielectric layer;
 - a second dielectric layer over the conductor; and
 - a magnetic layer over the second dielectric layer, wherein the magnetic layer comprises cobalt.
13. The inductor of claim 12, wherein the magnetic layer comprises an amorphous alloy comprising cobalt.
14. The inductor of claim 12, wherein the magnetic layer comprises an amorphous alloy comprising cobalt and zirconium.
15. The inductor of claim 12, wherein the magnetic layer comprises an amorphous alloy comprising cobalt; zirconium; and tantalum, niobium, rhenium, or a rare earth element.
16. The inductor of claim 12, wherein the magnetic layer defines at least one slot.
17. The inductor of claim 12, wherein the conductor defines a generally spiral-shaped signal path having at least one turn.

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The inductor of claim 12, wherein the first dielectric layer defines one or more trenches and wherein the conductor defines a signal path along the one or more trenches.

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19. A method comprising:

forming a first dielectric layer over a substrate comprising a semiconductor material;

forming a magnetic layer over the first dielectric layer;

forming a second dielectric layer over the magnetic layer; and

forming a conductor over the second dielectric layer.

20. The method of claim 19, wherein the forming the magnetic layer comprises forming a magnetic layer comprising cobalt.

21. The method of claim 19, wherein the forming the magnetic layer comprises forming a magnetic layer comprising an amorphous alloy comprising cobalt.

22. The method of claim 19, wherein the forming the magnetic layer comprises forming a magnetic layer comprising an amorphous alloy comprising cobalt and zirconium.

23. The method of claim 19, wherein the forming the magnetic layer comprises forming a magnetic layer comprising an amorphous alloy comprising cobalt; zirconium; and tantalum, niobium, rhenium, or a rare earth element.

24. The method of claim 19, comprising patterning the magnetic layer to define at least one slot.

25. The method of claim 19, comprising:

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forming a third dielectric layer over the conductor; and
forming another magnetic layer over the third dielectric layer.

26. The method of claim 25, comprising patterning the other magnetic layer to define at least one slot.

27. The method of claim 25, comprising connecting the magnetic layers.

28. The method of claim 19, comprising patterning the conductor to define a generally spiral-shaped signal path having at least one turn.

29. The method of claim 19, comprising patterning the first dielectric layer and the magnetic layer to define one or more trenches such that the conductor defines a signal path along the one or more trenches.

30. A method comprising:

forming a first dielectric layer over a substrate comprising a semiconductor material;

forming a conductor over the first dielectric layer;

forming a second dielectric layer over the conductor; and

forming a magnetic layer over the second dielectric layer, wherein the magnetic layer comprises cobalt.

31. The method of claim 30, wherein the forming the magnetic layer comprises forming a magnetic layer comprising cobalt.

32. The method of claim 30, wherein the forming the magnetic layer comprises forming a magnetic layer comprising an amorphous alloy comprising cobalt.

33. The method of claim 30, wherein the forming the magnetic layer comprises forming a magnetic layer comprising an amorphous alloy comprising cobalt and zirconium.

34. The method of claim 30, wherein the forming the magnetic layer comprises forming a magnetic layer comprising an amorphous alloy comprising cobalt; zirconium; and tantalum, niobium, rhenium, or a rare earth element.

35. The method of claim 30, comprising patterning the magnetic layer to define at least one slot.

36. The method of claim 30, comprising patterning the conductor to define a generally spiral-shaped signal path having at least one turn.

37. The method of claim 30, comprising patterning the first dielectric layer to define one or more trenches such that the conductor defines a signal path along the one or more trenches.

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